

THE ROLE BIOMEDICAL RESEARCH HAS, AND WILL PLAY, IN POSTPONING AGING RELATED FUNCTIONAL DECLINE.

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This presentation will give examples on how a combination of basic and clinically oriented research has contributed to a better understanding of aging in itself, and also at ages when disability and morbidity (i.e. illness) might mask manifestations of aging, or vice versa. Mainly through longitudinal population studies, manifestations of aging have been better distinguished from symptoms of disease. As a consequence diagnostic and treatment criteria of morbidity have been sharpened, and manifestations of aging in itself analyzed and followed.

Such research shows how not only genetic but also many exogenous (external) factors, such as our life style, living circumstances and availability of adequate medical care, are influencing many important functional consequences of aging in itself. Measures to prolong the life period with productive vitality exist, but the applications differ between populations, environments and social settings. Certain aging related changes in organ or organ system functions can be markedly influenced, exemplified by skeletal muscle strength, psychomotor speed, balance and the rate of the development of a fragile skeleton.

One example on possibilities to postpone functional decline in everyday clinical programs is illustrated by the fact that too many older people don't receive enough help to regain functional performance after events threatening their vitality, e.g. an acute but treatable disease, loss of a spouse, periods of social isolation and inactivity, etc. A disease is treated, but the old and frail person is sent home before she has reached a state when her own reserves would allow her to recover strength and reasonable function. Much more can be done to avoid such stepwise functional declines.

Some aging related functional declines seem, however, to be mainly genetically determined, and might not, according to current knowledge, be significantly influenced by external factors. When "trainability" exists for certain organ functions but not for others, risks for side effects by generalized activation of the whole individual have to be considered. This illustrates the need for teachers, coaches, psychologists, and medical personnel (e.g. physical therapists) with specialized knowledge about aging. In general, realistic information on aging per se and possibilities to prolong fitness has to be introduced to young and old, and not only risk factors for disease.

More and more aging research indicates that variations in the longevity between nations, and also between segments within a population, are caused not only by differences in the occurrence of disease and availability of medical service, but also by differences in the functional consequences of aging in itself caused by exogenous factors. Examples are variations in longevity between countries and social settings in the industrialized world, with similar morbidity distribution and availability of medical care.

In already long living populations a fear has developed for a socioeconomic stagnation accompanying a predicted even further increase in longevity. Speculations of to what extent measures to postpone aging related decline instead would allow a societal progress might also be relevant. The hope might be unrealistic that more old, experienced and still at old age productive members of our societies would mean the avoidance of stagnation even if their aging related "dysfunctions" would cause both individual and societal burdens. Future biomedical, social, etc, research will hopefully show how/if an extension of the period with professional contributions, in itself, would imply a postponement of the aging related decline in functional performance in already long living populations.